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REPORT BY THE

Comptroller General

OF THE UNITED STATES

To Continue Or Halt The Tenn-Tom Waterway? Information To Help The Congress Resolve The Controversy

SUMMARY

ORIGINAL

The Tennessee-Tombigbee Waterway continues to generate controversy. Ten years and $1.1 billion have been spent on construction of the project, which will link the inland waterway system with the Gulf of Mexico. Project costs are estimated to total about $2 billion when the project is completed in 1988.

GAO believes two key issues in the decision to halt or complete Tenn-Tom are:

--Although more than $600 million would be saved by halting Tenn-Tom, that saving must be weighed against the loss of about $125 million in average annual benefits expected from the completed project. Average annual benefits achieved to date are roughly $12 million.

--Completing Tenn-Tom will create a bottleneck on the waterway south of Demopolis, Alabama. Eliminating the bottleneck would cost about $960 million--$323 million for construction (Oct. 1979 dollars) and $637 million for inflation to the end of the estimated construction period in 1997. Continuing Tenn-Tom may be sowing the seed for this additional project.

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COMPTROLLER GENERAL'S
REPORT TO THE CHAIRMAN
SUBCOMMITTEE ON ENERGY
AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

TO CONTINUE OR HALT THE TENN-TOM WATERWAY? INFORMATION TO HELP THE CONGRESS RESOLVE THE CONTROVERSY

D I G E S T

The Tennessee-Tombigbee Waterway (Tenn-Tom) has had a long, troubled history. The Congress authorized the project in 1946, but construction did not start until 1971. The approved project consists of a 232-mile waterway--the largest currently under construction by the Corps of Engineers--connecting the Tennessee River with the existing Black Warrior-Tombigbee Waterway (BWTW) near Demopolis, Alabama. From Demopolis the combined waterways will share BWTW for the 217 miles south to Mobile Bay. (See pp. 1 to 4.)

The navigation portion of Tenn-Tom is scheduled for completion in 1986 and the overall project in 1988 at an estimated cost of $1.96 billion ($1.78 billion in Corps funds). Approximately $981 million in Corps funds have been obligated as of March 1981. A 114-mile section of the waterway was opened for limited traffic in December 1979. (See pp. 1 to 6.)

Controversy over Tenn-Tom abounds. Proponents claim that it will benefit the entire Nation by providing a more efficient and economical transportation route from the midcontinent and Eastern United States to the Gulf of Mexico. But opponents claim that the project is not economically and environmentally viable. Considerable attention--both pro and con--has been focused on the project by the news media and the Congress. Two lawsuits to halt construction have been brought against the Government; the Federal Court for the Northern District of Mississippi ruled against the plaintiffs in both cases. The latest lawsuit is under appeal to the Fifth Circuit Court of Appeals. (See pp. 1 to 6.)

In 1981--10 years after construction started--the waterway is 53 percent complete and expenditures continue at approximately $20 million

per month. Given this situation, issues considered critical in the past do not have the same importance that they might have had 5 years ago. GAO believes only two major issues remain:

--Is the approximately $600 million to be saved by halting the project worth the almost total loss of the approximately $1.1 billion invested in the project? Average annual benefits achieved as of March 1981 amount to roughly $12 million, and achieving the full estimated average annual benefits of $136.9 million would require completing the project.

--Is the Congress, in approving Tenn-Tom, sowing the seeds for a future project? Completion of Tenn-Tom will result in traffic constraints south of Demopolis. To eliminate this bottleneck, the Congress would have to authorize major improvements to the existing BWTW, estimated to cost $960 million--$323 million for construction (Oct. 1979 dollars) and $637 million for inflation to the end of the estimated construction period in 1997. While Tenn-Tom has been economically justified by the Corps without the improvements, neither waterway can reach Corps traffic projections without the improvements. Of course, if Tenn-Tom is halted, these improvements will not be needed. (See pp. 85 to 89.)

The question may not be only one of whether the project should be halted or completed. If Federal expenditures are the concern, the Congress may wish to explore alternative financing. (See pp. 85 and 88.)

The former Chairman, Subcommittee on Energy and Water Development, Senate Committee on Appropriations, and several Senators and Congressmen asked GAO to answer specific questions about Tenn-Tom. The principal issues raised are discussed below.

BENEFIT CALCULATIONS

Perhaps the most important factor in deciding whether to build a navigational project is the benefit-cost ratio. The Corps has had a long history of recommending for congressional approval only projects for which benefits exceed costs. In 1971, when the Congress approved construction of Tenn-Tom, the Corps determined the project's benefit-cost ratio to be 1.6 to 1.

However, shortly thereafter rapidly escalating construction costs and other factors converged to bring into question the project's economic viability. As a result the Corps restudied project benefits and costs. The Corps' restudy, completed in 1976, showed a benefit-cost ratio of 1.08 to 1, which the Chief of Engineers described as "marginal, but yet certainly satisfactory." (See pp. 1 and 2.)

A key issue is whether the restudy accurately projected benefits. The Corps' study identified 121 movements that potentially could realize a savings by using Tenn-Tom and the benefits that would accrue to these movements by using the waterway. Benefits accrue from the estimated savings that result from the differences in cost between shipping on the Tenn-Tom versus another route. A "movement" was defined as the annual tonnage of a specific commodity moving between a given origin and destination. (One movement could actually be comprised of dozens of shipments.)

GAO reviewed 17 of the largest movements, which represented $77.5 million, or 63 percent, of navigation benefits included in the Corps' 1982 budget request. Each of the 17 movements was identified as either already moving on an alternate transportation mode in 1975 or as expected to start moving on an alternate mode by 1980. It was anticipated that all 17 of these movements would utilize Tenn-Tom when it opens.

Of the 17 movements, GAO found that:

--Six movements ($14.9 million in benefits) were occurring.

--One movement ($843,000 in benefits) is occurring but expected to stop before Tenn-Tom opens.

--Nine have not occurred ($59.6 million in benefits), though four of the shippers said they may use Tenn-Tom when it opens.

--One shipper could not be located ($2.2 million in benefits).

The movements did not occur for a variety of reasons, including (1) changes in business conditions, (2) bankruptcy, and (3) governmental

regulation which restricted the use of high sulphur coal. The Corps considers the Tenn-Tom navigation benefit study (completed by A.T. Kearney, Inc., Chicago, Illinois, in 1976) to be a "snapshot in time" and fully expects that over a 5-year period some firms will go out of business, some will come in, and specific plans and opinions may change. While the "snapshot in time" is an acceptable framework for measuring navigation benefits, one cannot assume that the movements that do not materialize will be exactly offset by new movements. This becomes especially critical when a few movements account for a large percentage of the benefits and they do not occur as projected, as was the case in the Kearney study.

GAO has reservations about some of the movements because some movements were either more tenuous than the Kearney study indicated or the tonnage amounts could not be verified to Kearney workpapers. However, the evidence is not strong enough to conclude that these movements were not properly included in 1976 when the Kearney navigation benefit estimate was made. GAO believes, however, that since over 50 percent of these movements have not occurred as projected by Kearney, the estimating practices may have been too liberal.

Since the 1976 study was made, the Nation's coal exports have increased. Because Tenn-Tom will service many of the Nation's major coal-producing regions, GAO believes that the waterway could be expected to handle coal shipments that were not included in the Kearney study. GAO did identify several companies, primarily coal shippers, that were not included in the benefit study that have said they plan to use Tenn-Tom when it is completed. (See pp. 11 to 31.)

Against this background of the benefits developed in earlier Tenn-Tom benefit-cost studies, an important factor to be considered is the comparison of the remaining benefit to remaining cost. The Corps currently estimates Tenn-Tom's remaining benefit to remaining cost at 3 to 1. (See p. 7.)

PROJECT CAPACITY

Potential traffic on both Tenn-Tom and BWTW will be constrained by the physical characteristics of the river and limited lock capacity

south of Demopolis. Recognizing this situation, the Corps determined that 44 million tons was the annual capacity of the combined waterway and assumed that this capacity would be reached in 1991. In determining Tenn-Tom benefits, the Corps allocated 29 million tons to Tenn-Tom and 15 million tons to BWTW.

Corps studies show that if the traffic constraints did not exist south of Demopolis, the two waterways could be expected to handle 60.4 million tons in the year 2000 and 80.1 million tons by 2010. After that, lock constraints on both waterways will prevent traffic from reaching the Corps' estimate of 143.3 million tons in 2035. Further complicating the capacity problem is the rapid growth of traffic using BWTW; in 1980 BWTW carried 15 million tons, the amount the Corps projected for 1991.

The Corps is studying an improvement project to eliminate the bottleneck south of Demopolis. This project is estimated to cost $960 million--$323 million (Oct. 1979 dollars) for construction and $637 million for inflation through the construction period in 1997. While Corps officials have stated that the improvement project is not needed to economically justify Tenn-Tom, GAO believes that if Tenn-Tom is completed and Corps projections are accurate, the Corps ultimately will have to propose this project to the Congress, because without the improvements, neither waterway can reach its potential. (See pp. 32 to 48.)

COST ESTIMATES

GAO believes the Corps' budget estimate of $1.78 billion for fiscal year 1982 is reasonably accurate. Most of this estimate ($1.4 billion) is made up of funds already obligated and/or expended as of March 1981 and the remaining future fiscal year balances of awarded contracts. Since fiscal year 1981, the Corps has included future inflation costs in its estimate. Inflation has been one of the primary reasons for cost escalation on this project. (See pp. 50 to 52.)

Considerable controversy arose over the fiscal year 1976 cost estimate reported by the Corps to the Congress in January 1975. The Corps reported that Tenn-Tom would cost $815 million; others have claimed the Corps should have reported costs of more than $1 billion. (See p. 50.)

The Army Audit Agency in a September 1976 report concluded that $344 million in costs were not included in the Corps' $815 million estimate. The Chief of Engineers in July 1980 testimony before the Subcommittee on Water Resources, Senate Committee on Environment and Public Works, gave a number of reasons for reporting $815 million instead of the higher estimate of $1.159 billion. Even though the higher estimate had surfaced as early as December 4, 1974, in the Corps South Atlantic Division and was provided to Corps headquarters in late December 1974, GAO cannot conclude that the Corps was wrong in reporting the $815 million in January 1975. However, GAO believes that the Corps could have alerted the Congress at that time that project costs could increase substantially. (See pp. 50 to 56.)

During the first 6 months of 1975, the Corps developed a number of cost estimates ranging from $1.23 to $1.4 billion. GAO believes that the Corps had ample opportunity after January 1975 to advise the Congress that costs would be higher than $1 billion. But in three different congressional hearings from February to July 1975, the Corps continued to report $815 million. Finally, in August 1975 the Corps advised the Chief Clerk of the Subcommittee on Public Works, Senate Committee on Appropriations, that costs would be $1.4 billion. The first time the Congress was formally provided a cost estimate greater than $1 billion was in January 1976, when the Corps reported a cost estimate of $1.36 billion. (See pp. 56 and 57.)

FISH AND WILDLIFE COORDINATION ACT

The Fish and Wildlife Coordination Act, as amended, requires that wildlife conservation receive equal consideration and be coordinated with other features of federally funded water resource projects.

The Fish and Wildlife Service made a study of the Tenn-Tom project and submitted its report to the Corps in March 1981. The report recommended, among other things, the acquisition of 97,000 acres--estimated to cost $31.5 million in Federal funds--to mitigate loss of wildlife habitats. While the Corps does not have to accept the Service's recommendations, it is required to consult with the Service and report to the Congress on those measures it finds justified.

However, the land purchases recommended in the report would require congressional approval. (See pp. 58 to 62.)

LOCAL SPONSORS' OBLIGATIONS

Public Law 79-525 requires that local sponsors--Alabama and Mississippi--perform, at their own expense, certain tasks needed as part of project construction, primarily highway bridge and highway relocations. Both States have completed or are in the process of accomplishing the required work and expect to complete it well before the waterway opens.

As of January 1981, the Corps reported local sponsors' costs at $170 million. However, the two States have not borne the entire cost. Pursuant to an amendment to the Federal Highway Act of 1976 (section 132 of Public Law 94-280), the Secretary of Transportation provided Mississippi $69.5 million and Alabama $20 million for highway and bridge relocations in connection with Tenn-Tom. (See pp. 63 to 68.)

TERMINATION COSTS

In August 1980 testimony before the Subcommittee on Energy and Water Development, Senate Committee on Appropriations, the Corps estimated the project termination cost to be $130.75 million as of September 30, 1980. This estimate provided for (1) settling existing contracts and claims as well as completing certain contracts, (2) restoring the site to an environmentally acceptable condition, and (3) settling real estate and deficiency judgments. (See pp. 69 to 74.)

GAO found that much of the termination estimate was based on the Corps' professional judgment and experience but little documentation. If the Corps had used historical experience, albeit limited, on contract termination, the termination estimate of $130.75 million could have been $13 to $18 million less. (See pp. 69 to 71.)

GAO estimates that if the project were terminated in March 1981, the Corps would save more than $600 million. However, expenditures are currently running about $20 million per month and the ultimate savings would depend on the

actual termination date and the specific decision about final disposition of the project property. (See pp. 69 and 81.)

Tenn-Tom's average annual operation and maintenance expense is estimated at $11.2 million. While a considerable amount of this cost would be saved if the project were terminated, funds would still be needed for upkeep, fire prevention, etc., of the remaining project. (See p. 78.)

GAO believes that the Congress, in weighing savings to be gained by terminating Tenn-Tom, should consider the investments States and local governments have made in anticipation of the waterway being completed. For example, the Port of Mobile has a $140 million expansion program underway, in part to handle anticipated Tenn-Tom traffic. (See p. 86.)

AGENCY COMMENTS AND GAO's EVALUATION

The Department of the Army commented that the relevant issue is not whether projected waterway movements actually materialize, but rather, whether the Corps used the appropriate economic estimating procedures. The Army concluded that the Corps used procedures accepted by knowledgeable navigation economists--the concept of "a snapshot in time"--and that the navigation benefits survey is without significant flaw. While GAO agrees that the "snapshot in time" is an acceptable framework for measuring navigation benefits, GAO is concerned with the number of movements that have not materialized. GAO believes that this issue is especially critical when a few movements account for a large percentage of benefits and they do not occur as anticipated. GAO believes this suggests the estimating practices may have been too liberal. (See pp. 29 and 30.)

The Army and the Office of Management and Budget both believe that completion of Tenn-Tom does not force completion of a project south of Demopolis, Alabama. They stated that such a project would be based on its own merit and could not be accomplished without congressional approval. GAO agrees that congressional approval would be required.

GAO believes, however, that it is important to recognize that based on Corps projections neither Tenn-Tom nor BWTW can reach their projected traffic levels unless the bottleneck south of Demopolis is eliminated. The Corps has stated in congressional testimony that the capacity of BWTW south of Demopolis was expected to be reached in 1991 and improvements would be needed to increase capacity. If Tenn-Tom is halted, these improvements would not be needed. (See pp. 88 and 89.)

The Army concluded that the economic justification in favor of project completion no longer can be fairly challenged, when justification is considered on a basis of remaining benefits to remaining costs, and that the project should be completed. Further, the Army said that GAO's review and report certainly leads to no other conclusion. GAO does not agree that its report leads to any conclusion one way or the other. GAO answered specific questions which were not designed to reach an overall conclusion on whether the project should or should not be completed. (See pp. 88 and 89.)

These and other comments from the Departments of the Interior and Transportation; the Appalachian Regional Commission; and A.T. Kearney, Inc., are summarized as appropriate at the end of each chapter and are included in their entirety with GAO's responses in appendixes II to VII.

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